# Understanding the Impact of Cyberloafing-Related Internet Monitoring on Employee Job Performance: A Field Experiment

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*Completed Research Paper*

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## Abstract

*Internet monitoring has been widely adopted in organizations to regulate employees' cyberloafing behaviour, which refers to employees' usage of the Internet for non-work-related purposes during work time. However, there is no study in prior literature to investigate how cyberloafing-related Internet monitoring affects employee job performance. To address this research gap, this study conducted a field experiment to examine the impact of Internet monitoring on employee job performance. I found that Internet monitoring decreased employees' cyberloafing behaviour, it also decreased employees' intrinsic work motivation. I further found that cyberloafing was negatively related to the job performance of employees with high extrinsic work motivation, and intrinsic work motivation was positively related to employee job performance. In other words, the results suggest that Internet monitoring may improve employee job performance by reducing employees' cyberloafing behaviour, but it can also harm employee job performance by decreasing employees' intrinsic work motivation.*

**Keywords:** Internet monitoring, cyberloafing, job performance, work motivation, field experiment

## Introduction

Cyberloafing refers to employees' behaviour using the Internet for non-work-related purposes during work time (Khansa et al. 2017), such as surfing news websites, visiting social networking sites, online shopping, gaming, chatting, etc. With the wide usage of various IT devices that are connected with the Internet, such as desktops, laptops, tablets, and smartphones, cyberloafing becomes very common in contemporary organizations. It is estimated that employees approximately spend 1-2 hours per workday on cyberloafing (Rajah and Lim 2011), which account for up to 30% of employee work time (Agarwal 2019; Askew et al. 2018). With the wide usage of personal smartphones, cyberloafing is becoming increasingly prevalent in the workplace. Compared with other traditional non-work-related activities in the workplace, such as long lunch breaks and socializing with coworkers, cyberloafing does not require employees to be physically absent from the office and is often not as visible as traditional non-work-related behaviours (Khansa et al. 2017; Wagner et al. 2012), this partially explains why cyberloafing is currently the main form of non-work-related behaviour in the workplace (Ivarsson and Larsson 2011).

Although cyberloafing may potentially have positive impacts on employees and organizations, such as offering employees an opportunity to take mental breaks which may be beneficial to their job performance

(Belanger and Van Slyke 2002; Kuem and Siponen 2014; Oravec 2002), many studies suggest that cyberloafing may steal employee working time and thus decrease employee job performance (Askew et al. 2014; Blanchard and Henle 2008). The pervasiveness of the Internet makes cyberloafing a *constant* distraction to employees' attention; employees may engage in cyberloafing frequently while pretending to be working (Khansa et al. 2017). Consequently, cyberloafing may pose an even greater threat to employee job performance than traditional non-work-related work activities if it is not appropriately regulated by organizational policies. In addition, some cyberloafing activities such as downloading pirated software applications or watching adult videos may contribute to information security risks or legal disputes (Cheng et al. 2014). Given the potential negative outcomes of cyberloafing, employers often want to exert control over employees' cyberloafing behaviour. Accordingly, different organizational policies to regulate employees' cyberloafing have been discussed in previous studies, including website blocking (Glassman et al. 2015), Internet monitoring (Henle et al. 2009), and informal or formal sanctions (Bock et al. 2010; Wong et al. 2005). Among the regulating policies that previous studies have discussed, Internet monitoring is one of the policies widely deployed in organizations. For example, it was found that 63% of employers monitor employees' Internet connections in the US (Jiang et al. 2019; Posey et al. 2011).

Previous studies on Internet monitoring have found evidence that Internet monitoring can deter employees' cyberloafing intention or self-reported cyberloafing behaviour (Henle et al. 2009; Ugrin and Pearson 2008), this is particularly the case when Internet monitoring is implemented with sanctions (Ugrin and Pearson 2013; Zoghbi-Manrique-de-Lara and Olivares-Mesa 2010). However, there is no study in prior literature to investigate how Internet monitoring affects employee job performance. This is a significant research limitation because the objective of Internet monitoring is to curb employees' cyberloafing and, ultimately, to improve employee job performance. Employers can not appropriately estimate the value of Internet monitoring without understanding how Internet monitoring affects employee job performance. Therefore, it is important for organizations to examine the impact of Internet monitoring on employee job performance and understand the underlying mechanisms.

To address the aforementioned research gap, I have conducted a field experiment to investigate the impact of Internet monitoring on employee job performance as well as the underlying mechanisms. To the best of my knowledge, this study is the first one in the literature to examine how cyberloafing-related Internet monitoring affects employee job performance. Drawing on deterrence theory and self-determination theory, I have developed and tested a model for understanding the mechanisms through which Internet monitoring affects employee job performance. This study may help organizations better understand the consequences of Internet monitoring, and thus help employers make appropriate decisions regarding whether to implement Internet monitoring in their organizations.

The rest of this paper is organized as follows. In the next section, I review previous studies on Internet monitoring and discuss the research gap. I then propose the research model as an attempt to address the research gap. This is followed by the research methodology and results. I conclude the paper by discussing the implications and limitations of this study as well as future research directions.

## Literature Review

Two types of employee monitoring have been discussed in the literature: performance monitoring and monitoring of employees' activities that are not directly related to job performance (such as Internet monitoring). In this paper, the differences between Internet monitoring and performance monitoring can be twofold. First, the objective of performance monitoring is to increase employees' work-related behaviours, whereas the objective of Internet monitoring is to curb or prohibit employees' non-work-related Internet usage. Second, performance monitoring can be conducted either through electronic means such as using computers or software, it can also be conducted through traditional means such as formal or informal meetings or supervisor observations, whereas Internet monitoring cannot be conducted without the Internet.

The majority of existing literature about employee monitoring focuses on performance monitoring (Jiang et al. 2019). There are only a handful of studies on Internet monitoring of employees' cyberloafing. Furthermore, previous studies on Internet monitoring only discussed how Internet monitoring affected employee cyberloafing behaviour, without discussing other potential outcomes of Internet monitoring, such as how Internet monitoring affects employee job performance. In this section, I first review existing studies

on Internet monitoring, which is the focus of our study. I then briefly review the prior literature about performance monitoring in order to gain insights regarding how Internet monitoring affects employee performance.

## *The Impact of Internet Monitoring on Employees*

Only a handful of studies have examined the impact of Internet monitoring on employees. For example, based on self-reported survey data of 116 employees from multiple companies, Henle et al. (2009) found that employees' cyberloafing frequency was negatively related to periodic monitoring. Ugrin and Pearson (2008) surveyed 87 employees and found that employees' awareness of monitoring system enforcement significantly deterred their intentions to engage in cyberloafing. The rationale behind this relationship is that Internet monitoring may increase employees' perception of sanctions, which negatively affects employees' cyberloafing intentions (Ugrin and Pearson 2008). Zoghbi-Manrique-de-Lara and Olivares-Mesa (2010)) found that Internet monitoring deterred employees' cyberloafing behaviour when it is implemented together with additional sanctions.

In addition, by considering the different types of cyberloafing activities, Ugrin and Pearson (2013) found that monitoring was effective in reducing some cyberloafing activities such as viewing pornography and shopping online, but not effective in reducing some other cyberloafing activities, such as personal e-mailing or social networking. According to Ugrin and Pearson (2013), this is because the latter type of cyberloafing activities may be perceived by employees as both work-related and non-work-related, strictly prohibiting these activities may not be in line with employees' personal ethical values, resulting in lower compliance with the Internet monitoring policy (Ugrin and Pearson 2013).

In short, the very limited number of studies on Internet monitoring in the literature suggest that Internet monitoring may reduce employees' cyberloafing behaviour, particularly when it is implemented combined with sanctions. However, there is no study to further investigate whether and how Internet monitoring will influence employee job performance.

## *The Impact of Performance Monitoring on Employees*

In addition to the *Internet monitoring* studies reviewed above, the majority of previous studies about employee monitoring in literature pertain to employee *performance monitoring*. The findings of studies on performance monitoring may have important implications for understanding how Internet monitoring affects employee job performance. Therefore, I briefly review the studies on employee performance monitoring in this section.

Generally speaking, the studies on performance monitoring suggest that (1) performance monitoring may result in some negative perceptions of employees; (2) employees' negative perceptions resulted from performance monitoring can be more salient if the monitoring is considered by employees as unfair; and (3) employees may consider the performance monitoring as unfair when the monitoring system provides unconstructive feedback, or when the information collected by the performance monitoring system is not totally related to work tasks.

For instance, Chalykoff and Kochan (1989) found that computer-aided performance monitoring can decrease employees' job satisfaction and increase their turnover intention. Similarly, Alder and Ambrose (2005) found that performance monitoring may negatively affect employee satisfaction; this is particularly the case when performance feedback derived from performance monitoring is not constructive. Furthermore, Kidwell and Bennett (1994a) argued that, when monitoring employees' performance, employees' attitudinal and behavioural reaction to the monitoring will be positive if the monitoring is considered fair. Kidwell and Bennett (1994b) found that procedural fairness explained a significant amount of variance in employees' satisfaction with the monitoring policy. In other words, the impact of performance monitoring systems on employees' satisfaction is mediated by perceived procedural fairness of the monitoring.

Subsequent studies further explored the factors that influence employees' perceived fairness of performance monitoring. In this realm, McNall and Roch (2007) found that employees' perceived information privacy concerns may result in their perception of procedural justice if employees consider that some of the information collected by the monitoring is not directly related to work performance. Similarly,

Samaranayake and Gamage (2012) found that employees' perceived privacy invasion caused by monitoring was significantly and negatively associated with employees' job satisfaction.

### *The Objective of This Study*

To summarize the literature, previous studies on Internet monitoring suggest that Internet monitoring may decrease employees' cyberloafing behaviour, because employees may have sanction concerns out of Internet monitoring. Existing studies on performance monitoring suggest that the monitoring invades employees' information privacy or provides feedback that is not constructive, employees may have negative perceptions such as perceived unfairness. Although previous studies have found that Internet monitoring can reduce employees' cyberloafing, it is unknown from previous studies how Internet monitoring affects employee job performance. Accordingly, the objective of this study is to investigate the impact of cyberloafing-related Internet monitoring on employee job performance.

Specifically, I focus on two mechanisms through which Internet monitoring may affect employee job performance: cyberloafing and work motivation. On the one hand, previous studies suggest that Internet monitoring can curb employee cyberloafing behaviour, and decreased cyberloafing may have an impact on employee job performance. On the other hand, previous studies suggest that organizational efforts to control employees' behaviours at work (such as Internet monitoring) may affect employees' work motivation (Alder and Tompkins 1997; Falk and Kosfeld 2006), which is an important predictor of their job performance. Therefore, the objective of this paper is to understand how Internet monitoring affects employee job performance by changing employees' cyberloafing behaviour and work motivation. I develop the research model and hypothesis in the next section.

## Theoretical Basis and Research Hypotheses

I investigate how Internet monitoring influences employee job performance based on deterrence theory and self-determination theory. Specifically, drawing on deterrence theory, I propose that Internet monitoring may reduce employees' cyberloafing behaviour, the reduced cyberloafing behaviour may further impact on employee job performance. Drawing on self-determination theory, I propose that Internet monitoring may have an impact on employees' work motivation, which further affects employee job performance. I elaborate on the theoretical basis and research model next (see Figure 1).

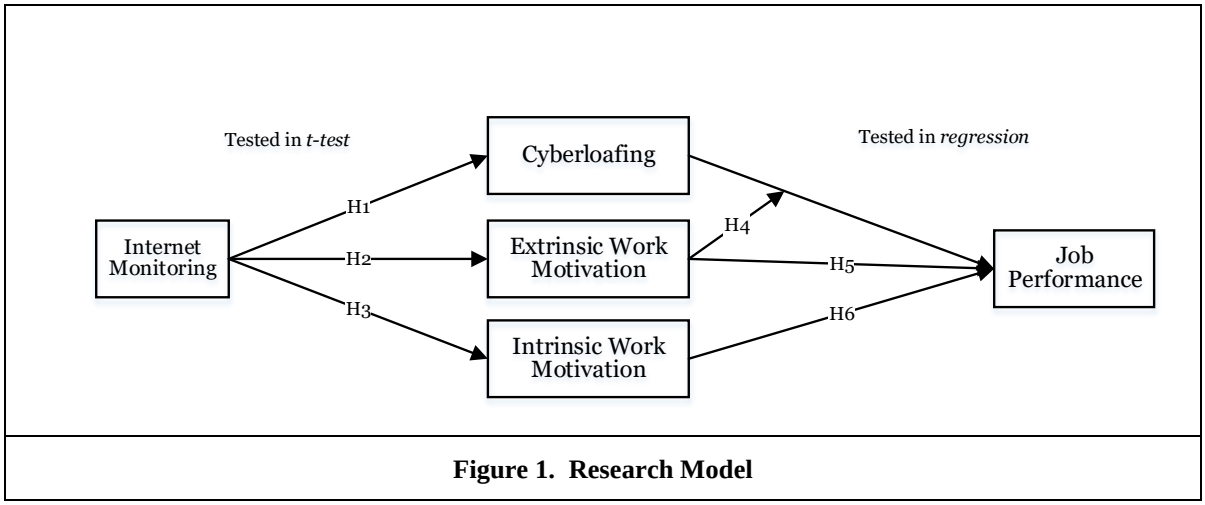


**Figure 1. Research Model**

### *The Impact of Internet Monitoring on Employees' Cyberloafing: Deterrence Theory*

Previous studies found that when employees' activities are under monitoring, especially when the monitoring objective is to curb the activities, employees are likely to perceive increased sanctions should they violate the objective of the monitoring. For instance, in the information systems security context,

D'Arcy et al. (2009) found employees' awareness of computer monitoring was positively related to employees' perceived sanctions of engaging in computer misuse behaviours. According to D'Arcy et al. (2009), implementing monitoring of a certain behaviour implies that organizations devote more resources to regulate the behaviour, and employees may interpret the increased resources as resulting in an increased sanction should they violate organizational expectations (D'Arcy et al. 2009). Similarly, Straub and Nance (1990)) also found that monitoring and surveillance increase the possibility of being caught while performing a certain behaviour, and hence the certainty of sanctions is likely to increase under monitoring.

Deterrence theory (Gibbs 1975) posits that individuals are likely to avoid a behaviour if they perceive the severity and likelihood of sanctions associated with the behaviour is high. According to the deterrence theory, the increased perceived sanction concerns due to monitoring will decrease the behaviours that are under monitoring. Based on this rationale, previous studies on information systems security found monitoring systems enhanced employees' perceptions of sanctions (D'arcy and Herath 2011; D'Arcy et al. 2009), which were negatively related to the actions they are intended to regulate (Nagin and Pogarsky 2001). The objective of Internet monitoring in organizations is to curb employees' cyberloafing behaviour, therefore, the implementation of Internet monitoring represents the expectation of organizations that employees should not engage in cyberloafing. This expectation may send a deterrence signal to employees, which may decrease employees' cyberloafing behaviour (Henle et al. 2009; Ugrin and Pearson 2008). Therefore, I propose the following hypothesis:

**H1:** Internet monitoring decreases employees' cyberloafing behaviour.

### *The Impact of Internet Monitoring on Employees' Work Motivation: Self-Determination Theory*

The implementation of Internet monitoring, which aims at controlling employees' Internet usage, may also affect employee work motivation. Work motivation refers to a set of energetic forces that originate both within as well as beyond an individual's being, to initiate work-related behaviour and to determine its form, direction, intensity, and duration (Pinder 2014). Work motivation is a psychological process resulting from the interaction between the individual and the environment (Latham and Pinder 2005). Therefore, when the work environment changes as a result of a new organizational policy (such as Internet monitoring), employees' work motivation can be affected. According to self-determination theory, motivation can be categorized into different types, with the most basic distinction being between intrinsic and extrinsic motivation (Deci and Ryan 1985). Intrinsic work motivation (IWM) refers to employees doing work tasks because they are inherently interesting or enjoyable, whereas extrinsic work motivation (EWM) refers to doing something because it leads to a separable outcome, such as monetary payment or a sense of security (Ryan and Deci 2000).

I propose that Internet monitoring may affect both the EWM and IWM of employees. In terms of EWM, the implementation of Internet monitoring may send a signal to employees that organizations are devoting more resources to prohibit them from engaging in non-work-related activities. Employees may interpret this signal as potentially having negative consequences in the case that they would disobey the purpose of the policy (D'Arcy et al. 2009). As a result, employees may devote more energy and time to work tasks as opposed to cyberloafing (Ugrin and Pearson 2013). Furthermore, since Internet monitoring may violate employees' information privacy, they may also interpret the Internet monitoring policy as a means of employers to maintain and improve job performance even at the expense of individual rights such as information privacy. These interpretations may strengthen employees' perceptions that their relationship with employers is only based on "economic exchange", namely the exchange of their effort, time, and even information privacy for receiving salaries. The perceived "economic exchange" relationship may, in turn, strengthen employees' perceptions that they perform job tasks because of external outcomes. In this sense, Internet monitoring may increase employees' EWM. Accordingly, I propose the following hypothesis:

**H2:** Internet monitoring increases employees' extrinsic work motivation.

In addition to EWM, I propose three paths through which Internet monitoring may affect employees' IWM. First, previous studies found that an increase in extrinsic motivation may undermine intrinsic motivation. For example, Deci (1972)) found that external reward and control may decrease individuals' intrinsic motivation to perform, because the external reinforcement (i.e., reward or control) may change individuals' perceived locus of causality for performing a certain behaviour, and this is particularly the case when the

rewards or control are implemented without their participation (Alder and Tompkins 1997). The undermining effects of reward and control on intrinsic motivation have been confirmed by subsequent studies (Falk and Kosfeld 2006). In this sense, the Internet monitoring which aims to control employees' (Internet usage) behaviour at work may negatively affect employees' IWM.

Second, previous studies have suggested that employees' affective experiences are important factors that influence motivation (Latham and Pinder 2005; Seo et al. 2004). Internet monitoring may violate employees' information privacy, which results in employees' dissatisfaction (Jiang 2016). The dissatisfaction may also decrease employees' perceived joyfulness of doing job tasks in the organization, which decreases employees' IWM.

Third, the perceived information privacy concern may also decrease employees' psychological empowerment (i.e., the feeling that people have control over their surroundings), which is an important source of employees' IWM (Alge et al. 2006). In line with the discussions above, I propose the following hypothesis:

**H3:** Internet monitoring decreases employees' intrinsic work motivation.

### *The Impact of Cyberloafing and Work Motivation on Employee Job Performance*

The discussion above suggests that Internet monitoring may affect employees' cyberloafing (i.e., H1) and work motivation (i.e., H2 and H3). Next, I discuss how employees' cyberloafing and work motivation affect employee job performance.

In terms of cyberloafing, previous studies generally agree that some cyberloafing activities can be constructive if the cyberloafing duration is appropriate (Coker 2011; Lim and Chen 2012), and a long-lasting duration of cyberloafing would decrease work performance. One theoretical explanation could be that appropriate duration of cyberloafing may replenish employees' cognitive resources, therefore, the negative impact of the decreased work time (due to cyberloafing) on job performance can be compensated by the positive impact of the replenished cognitive resources (by cyberloafing) on job performance (Jiang 2016). However, individuals' cognitive resources can no longer be significantly replenished after it reaches a certain level. Therefore, if the cyberloafing duration is too long, the negative effect of reduced work time cannot be fully compensated by the positive effect of replenished cognitive resources.

Although the appropriate duration of cyberloafing (in terms of cognition replenishment and job performance) has not been determined by previous studies, I believe it can vary from person to person, and employees' work motivation can play a role in the relationship between cyberloafing and job performance. Specifically, the work behaviours of employees with high EWM is mainly driven by external incentives (rewards, sanctions or controls), and such incentives (e.g., salaries or organizational controls) tend to be static in the short term. Therefore, employees with high EWM are relatively more likely to use cyberloafing as a means of slack, compared with employees with high IWM. In this case, if there is no organizational policy to regulate cyberloafing, they may be more likely to engage in excessive cyberloafing. The excessive cyberloafing with the slacking purpose tends to decrease employee job performance. Accordingly, the relationship between cyberloafing and job performance tends to be negative for employees with high EWM. In other words, for employees with high EWM, their job performance may be improved if their cyberloafing is decreased (by Internet monitoring). Therefore, I propose the following hypothesis:

**H4:** The relationship between cyberloafing and job performance is moderated by employees' EWM, such that for employees with high EWM, there is a negative relationship between cyberloafing and job performance.

In addition to cyberloafing, our earlier discussion suggests that Internet monitoring may also influence employees' work motivation (including EWM and IWM), and work motivation has been suggested to be an important antecedents of employee performance in various context (Steers et al. 2004), this is particularly the case when employees have control over their job performance (Van Knippenberg 2000). According to self-determination theory, both EWM and IWM are positively related to job performance, because both EWM and IWM may drive employees to increase their effort devoted to job tasks, which result in increased job performance. Therefore, I propose the following two hypotheses:

**H5:** EWM is positively associated with employee job performance.

**H6:** IWM is positively associated with employee job performance.

# Methodology

## *Experiment Procedure*

I conducted a field experiment to test the hypotheses. The experiment was conducted in a software development company. There were 80 employees who participated in our study, including programmers (n=27), web designers (n=12), system administrators (n=6), sales agents (n=16), administration staff (n=15), and managers (n=4). 57% of the participants are males, more than 70% of the participants are under 40 years old, and roughly 80% of all participants have a bachelor or a master degree. The participants' offices located in two different buildings in the same city; therefore, I divided the participants into two groups based on which building their offices located in, in order to minimize the communication between participants of the two groups. Prior to the experiment, I did not find any significant difference between the two groups regarding age, education level and work experience, although the female participants of the control group were more than that of the experiment group. Furthermore, as shown in the later sections, I did not find any pre-test differences from the two groups regarding the key variables of interest, including employees' cyberloafing, EWM, IWM. This indicates that the group division is acceptable for the purpose of our study.

I randomly chose one group as the control group and the other as the treatment group. Prior to the experiment, each of the participants was assigned a randomly generated code by the secretary of the company to represent employee identity. The corresponding relationship between the code and the employee's identity was only known by the secretary, who was not among the experimental participants.

The field experiment was conducted in four steps. The first step (pre-test) occurred one month before the implementation of Internet monitoring, in which I surveyed all participants of both groups. Three constructs were included in the survey instrument: Internet usage policy awareness (PA, I included this construct for the purpose of manipulation check), extrinsic work motivation (EWM) and intrinsic work motivation (IWM). Participants' demographic information was also gathered, although no identifying information was collected so that participants' anonymity was guaranteed.

In the second step, the company announced the Internet monitoring policy to the participants of the experiment group but not to the participants of the control group. The content of the Internet monitoring policy, which was sent by the CEO of the company via email to all participants of the experiment group, was as follows:

*"Recent reports in business magazines and academic research suggest that non-work-related computing activities are at times seen in organizations, such as checking friend updates on Facebook, reading the news on Yahoo!, watching videos on YouTube, buying things on Amazon, and so on. To make sure our employees use the Internet in an effective way, the management team has decided to start using the monitoring and tracking functions of the proxy server in our company, to record all the websites visited daily by our employees from now on."*

The third step (post-test) occurred one week after the Internet monitoring announcement. The post-test consisted of again surveying all participants using the same survey instrument, including the constructs mentioned above, namely PA, EWM, and IWM. In the fourth step, I collected employees' self-reported job performance (PERF) using a questionnaire. Employees' cyberloafing (CL) behaviour was tracked by the monitoring system across the entire experiment (i.e., from the beginning of the first step to the end of the fourth step). I use the amount of time (i.e., duration) that employees spend on non-work-related websites as the measurement of their cyberloafing behaviour, and the time duration that an employee spent on a certain website was calculated by the Internet monitoring system.

## *Validity and Reliability of Constructs*

The four constructs (PA, EWM, IWM, PERF) included in our survey were measured by multi-item scales drawn from previously validated measures and were adapted specifically to the context of cyberloafing and Internet monitoring (Tremblay et al. 2009; Williams and Anderson 1991). All items were assessed via a 7-point Likert scale, from "strongly disagree" to "strongly agree." Examples of the EWM measurements are "I

am presently involved in my work because of the income it provides me" and "I am presently involved in my work because this type of work provides me with security". Examples of the IWM measurements are "I am presently involved in my work because the tasks that I do at work are enjoyable" and "I am presently involved in my work because my job is so interesting that it is a motivation in itself". Examples of PERF measurements are "I always complete the duties specified in my job description" and "I fulfil all the responsibilities required by my job". The entire survey questionnaire was translated from English to Portuguese via a professional translation agent (i.e., translation) and then translated back from Portuguese to English by a bilingual individual (i.e., back translation) to ensure equivalency of meaning.

Convergent and discriminant validities of the constructs were assessed with Amos confirmatory factor analysis (CFA). I conducted CFA separately using data collected in the pre-test and data collected in the post-test. The CFA results suggested that the standardized loadings of all measurement items to the corresponding constructs are above 0.7. The correlations between the constructs are less than 0.306 (pre-test) and 0.420 (post-test). Model fit indices suggested the constructs fit the measurement items well, with CFI of 0.951 (pre-test) and 0.987 (post-test), TLI of 0.949 (pre-test) and 0.979 (post-test), and RMSEA of 0.054 (pre-test) and 0.040 (post-test). The CFA indices above indicate that the convergent and discriminant validities of the constructs are reasonable.

**Table 1 Construct Reliability**

| Constructs | Cronbach's α | |
|---|---|---|
| | Pre-test | Post-test |
| PERF | N/A | 0.828 |
| EWM | 0.833 | 0.743 |
| IWM | 0.839 | 0.747 |

I also assessed the constructs' reliability using Cronbach's α as calculated by SPSS, with results presented in Table 1. Table 1 shows that the values of Cronbach's α of all constructs in both pre-test and post-test are greater than 0.7, indicating that the reliability of the constructs is reasonable (Moody et al. 2018). Descriptive statistics of the constructs involved in the study are shown in Table 2, including the mean and standard deviation of all the constructs mentioned above in terms of all participants, the participants in control group and treatment group separately. The results will be further discussed in the later sections.

**Table 2 Descriptive Statistics of the Constructs**

| | All Participants | | Control Group | | Treatment Group | |
|---|---|---|---|---|---|---|
| | Mean | *SD* | Mean | *SD* | Mean | *SD* |
| CL-Pre | 6718.55 | 3628.51 | 7072.70 | 3531.93 | 6369.83 | 4061.04 |
| CL-Post | 5225.24 | 3178.19 | 6454.31 | 3496.26 | 4480.15 | 2937.58 |
| EWM-Pre | 4.682 | 1.461 | 4.711 | 1.257 | 4.757 | 1.558 |
| EWM-Post | 4.967 | 1.344 | 4.910 | .769 | 5.162 | 1.673 |
| IWM-Pre | 5.860 | 0.934 | 5.867 | .840 | 5.730 | 1.000 |
| IWM-Post | 5.741 | 0.958 | 5.996 | 0.576 | 5.588 | 1.011 |

Note: the unit of cyberloafing measurement is seconds. For example, 6718.55 in Table 2 means that the average cyberloafing duration of all participants is 6718.55 seconds per day.

## *Pre-Similarity Test and Manipulation Check*

I examined the similarity between the two groups in the pre-test employing independent samples t-test. The result suggests that there was no significant difference between the two groups in pre-test, in terms of all constructs of interest, including PA (t = 1.122, p = 0.266, 2-tailed), EWM (t = 0.141, p = 0.888, 2-tailed), IWM (t = 0.646, p = 0.520, 2-tailed), Cyberloafing (t = 0.849, p = 0.399, 2-tailed). These results indicate that the division of the two groups was acceptable for the purpose of this study.

I also conducted a manipulation check in order to make sure that participants in the treatment group indeed received the Internet monitoring policy and that the participants in the control group did not. The

manipulation check was conducted at both the individual and group levels. At the individual level, a manipulation check question was included for all participants at the end of the post-test survey (i.e., one week after implementing Internet monitoring), following the description of the Internet monitoring policy presented above—namely, "Did you receive an email from the company regarding the Internet monitoring policy described above?" For participants in the treatment group, two options were provided to answer the manipulation check question: "yes" or "no." Only those who chose the "yes" option were included as valid participants in the experiment group; two participants who answered "no" were excluded.

For participants in the control group, three options were provided to answer the manipulation question: (1) Yes, I received the email; (2) No, I did not receive the email, but I heard about the policy from my colleagues; and (3) No, I did not receive the email, and I did not hear about this policy. Only those who chose option 2 were included as valid participants in the control group; three participants who chose option 5 were excluded. As a result, 75 participants met the aforementioned criteria in terms of the manipulation check, with 34 participants in the control group and 41 participants in the experiment group.

On the group level, I also compared awareness of organizational policy regarding the cyberloafing of participants in the control group and experiment group before and after the Internet monitoring announcement. Based on the independent samples t-test, I found no significant difference in the pre-test between the control group and experiment group regarding employees' awareness of organizational Internet use policy. However, in the post-test, I found that policy awareness by participants of organizational Internet use policy in the experiment group was significantly higher than awareness by participants in the control group ($t = 2.208$, $p = 0.031$, 2-tailed). This difference also suggests that, at an aggregate level, the manipulation of Internet monitoring was successful.

## Results

I employed independent-sample t-test to validate H1, H2, and H3, and I used regression analysis to test H4, H5, and H6. I present the result of hypotheses testing below.

The first three hypotheses of our model pertain to the impact of Internet monitoring on employees' CL, EWM and IWM. As discussed above, there were no significant differences in the pre-test between the two groups regarding the three constructs. The manipulation was also shown as valid through the manipulation check described above. Therefore, I tested these three hypotheses by comparing the differences between the two groups in the post-test, regarding CL, EWM, and IWM.

In terms of CL, I found that the cyberloafing of participants in both groups decreased after Internet monitoring. However, the decrease of CL of participants in the experiment group was more than the decrease of CL of participants in the control group. As a result, the CL of participants in experiment group ($M=4480.15$, $SD=2937.58$) was lower than the CL of the control group ($M=6454.31$, $SD=3496.26$), and the difference was statistically significant ($p=0.022$). The results suggest that Internet monitoring decreased employees' CL. Therefore, the H1 was supported.

For EWM, I found that the EWM of the experiment group ($M=5.162$, $SD=1.673$) was higher than the control group ($M=4.910$, $SD=0.769$) in the post-test, but the result was not statistically significant ($p=0.39$), indicating that Internet monitoring did not significantly increase employees' EWM. Therefore, I conclude that the hypothesis 2 was not supported.

For IWM, I found that the IWM of employees in the experiment group ($M=5.588$, $SD=1.011$) became significantly lower than that of the control group ($M=5.996$, $SD=0.576$), $p= 0.032$, indicating that employees' IWM decreased after the implementation of Internet monitoring. Therefore, hypothesis 3 was supported by the data.

I run a regression analysis to test H4, H5, and H6. The dependent variable was PERF, and independent variables include CL, EWM and IWM, I also included an interaction item CL*EWM as an independent variable in order to test the moderating effect of EWM (i.e., H4). Furthermore, since previous studies suggested that the appropriate duration of cyberloafing may positively affect employee job performance (Coker 2011; Lim and Chen 2012), implying an inverted "U" relationship between cyberloafing and job performance, therefore, I included a quadratic term $CL^2$ (i.e., CL*CL) in the model as an attempt to control the possible quadratic relationship between cyberloafing and job performance, although the focus of the

model was not to test the quadratic relationship. In addition, I included participants' gender (GEN), Age (AGE), work experience (EXP) and job satisfaction (SAT) as control variables. The correlations of these variables are shown in Table 3.

**Table 3 Means, Standard Deviations and Correlations between Variables**

| Varables | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. PERF | (0.82) | | | | | | | | | |
| 2. CL | -.104 | (NA) | | | | | | | | |
| 3. $CL^2$ | .011 | .534** | (NA) | | | | | | | |
| 4. CL*EWM | -.024 | -.164 | -.150 | (NA) | | | | | | |
| 5. EWM | .169 | .029 | -.145 | .143 | (0.74) | | | | | |
| 6. IWM | .338** | .028 | -.212 | .078 | .441** | (0.75) | | | | |
| 7. SAT | .140 | .221 | .044 | -.056 | .128 | .308** | (0.84) | | | |
| 8. GEN | -.212 | .097 | -.015 | -.035 | -.029 | -.054 | .066 | 1 | | |
| 9. AGE | .087 | .152 | .062 | -.046 | -.071 | .139 | .255* | -.107 | 1 | |
| 10. EXP | -.067 | .010 | .162 | .173 | .020 | .204 | .177 | -.182 | .489** | 1 |
| Mean | 6.15 | 5225.24 | N/A | N/A | 4.97 | 5.74 | 4.64 | 1.34 | 3.14 | 2.06 |
| S.D. | .54 | 3178.19 | N/A | N/A | 1.34 | 0.96 | 1.28 | 0.48 | 0.97 | 1.20 |

**Table 4 Linear Regression Results**

| Variables | Employee Job Performance | | | |
|---|---|---|---|---|
| | Beta | T | Significance | VIF |
| Constant | | 6.512 | .000 | |
| CL | -.243 | -1.765 | .083 | 1.543 |
| $CL^2$ | .220 | 1.554 | .126 | 1.622 |
| EWM | .129 | 1.055 | .296 | 1.208 |
| IWM | .408 | 2.944 | .005 | 1.556 |
| CL*EWM | -.271 | -2.261 | .028 | 1.562 |
| SAT | .232 | 2.237 | .029 | 1.154 |
| GEN | -.238 | -2.073 | .043 | 1.068 |
| AGE | .043 | .313 | .756 | 1.540 |
| EXP | -.200 | -1.490 | .142 | 1.456 |
| $R^2$ | 0.285 | | | |
| Adjusted $R^2$ | 0.174 | | | |

Table 4 shows the regression results for testing H4, H5, and H6. As shown in Table 4, CL was negatively related to PERF, with marginal statistical significance, the relationship between $CL^2$ and PER was not significant. However, the variable CL*EWM was negatively related to PERF, and the negative relationship was statistically significant (p=0.028). The results indicated that, for employees with high EWM, decreasing CL will increase employee job performance. Therefore, H4 was supported by the data. Both EWM and IWM were positively related to PERF, but the relationship between EWM and PERF was not statistically significant, whereas the relationship between IWM and PERF was statistically significant. Therefore, I conclude that the H5 was not supported, and the H6 was supported.

# Discussion

## *Discussion of the Results*

Table 5 below summarizes the results of the hypotheses testing. The results suggested that Internet monitoring decreased employees' cyberloafing behaviour, which is the intended consequence of Internet monitoring. However, I found that Internet monitoring also decreased employees' intrinsic work

motivation, which is an unintended consequence of Internet monitoring from organizations' perspective. Surprisingly, the result suggested that Internet monitoring did not significantly increase employees' extrinsic work motivation. This may be because employees' extrinsic work motivation is mainly influenced by factors such as employees' payment and work content, which may overrule the relatively minor influence of Internet monitoring.

**Table 5 Summary of Hypotheses Testing Result**

| Hypotheses | | Test Result |
|---|---|---|
| H1 | Internet monitoring decreases employees' cyberloafing. | Supported |
| H2 | Internet monitoring increases employees' extrinsic work motivation. | *Not Supported* |
| H3 | Internet monitoring decreases employees' intrinsic work motivation. | Supported |
| H4 | The relationship between cyberloafing and job performance is moderated by employees' EWM, such that for employees with high EWM, there is a negative relationship between cyberloafing and job performance. | Supported |
| H5 | H6 EWM is positively associated with employee job performance. | *Not Supported* |
| H6 | H7 IWM is positively associated with employee job performance. | Supported |

The results also suggested that the relationship between employee cyberloafing and job performance is related to employee work motivation. Specifically, I found that employees' extrinsic work motivation negatively moderated the relationship between cyberloafing and job performance, meaning that the job performance of employees with high extrinsic work motivation is likely to increase if their cyberloafing behaviour is decreased. This finding suggests that the relationship between cyberloafing and employee job performance maybe not that straightforward, the impact of cyberloafing on employee job performance may vary for different employees.

I also studied the relationship between the two types of work motivation and job performance. While I found a positive relationship between intrinsic work motivation and job performance, I did not find a positive relationship between extrinsic work motivation and job performance. One possible reason for the insignificant relationship could be that, most participants of our study are software professionals which require relatively high job skills, and their job performance (in a certain period) primarily depends on their job skills rather than the time or efforts that they put in the job tasks, which is mainly determined by extrinsic work motivation. In other words, for employees who perform relatively complex job tasks (such as software programmers), EWM cannot always improve their job performance.

## *Theoretical and Practical Implications*

The theoretical implications of this study are threefold. First, to the best of my knowledge, this study is the first one in the literature to investigate the impact of Internet monitoring in the workplace on employee job performance. This study preliminarily clarified the mechanism through which Internet monitoring influences employee job performance, including cyberloafing behaviour and work motivation. In this sense, this paper fills an important research gap in the field of cyberloafing and Internet monitoring.

Second, this study may also offer implications for the relationship between cyberloafing and job performance. In the cyberloafing literature, some studies consider cyberloafing as stealing work time, which results in decreased job performance, whereas other studies posit that cyberloafing facilitates mental recovery or work-life balance, which thus benefits job performance (Jiang and Tsohou 2014). As I mentioned earlier, there are few studies in prior literature that empirically investigated the relationship between cyberloafing and employee job performance, and the very limited studies focus on how cyberloafing duration affects employee job performance, without considering the heterogeneous of the relationship in terms of individual differences. This paper takes the first step to fill this gap by taking into account employees' work motivation. I found that the relationship between cyberloafing and job performance may be moderated by employees' (extrinsic) work motivation, which possibly opens a new

avenue for integrating the previous studies which hold opposing opinions regarding the impact of cyberloafing on employee job performance.

Third, this study may also have implications to the literature of organizational policy compliance in general. For example, information security policy (ISP) compliance researchers have widely discussed the factors that determine employees' compliance with a security policy (Sommestad et al. 2014; Tsohou et al. 2015). However, there is relatively little research about the potential spillover impact of ISP on employees, beyond their information security behaviours in organizations. The findings of this study suggest that Internet monitoring not only affects employees' cyberloafing behaviour (i.e., the intended consequence) but also affect employees' work motivation, particularly intrinsic work motivation, which is an unintended consequence. In this sense, our findings that revealed the existence of unintended impacts of Internet monitoring suggest that it is necessary for researchers to comprehensively investigate the possible outcomes of specific organizational policies (e.g., ISP), in terms of both targeted behaviours of the policy as well as non-targeted behaviours and perceptions of employees.

In terms of practical implications, this study suggests that when employers plan to implement Internet monitoring as an attempt to address employees' cyberloafing behaviour, they should consider not only whether Internet monitoring is effective to reduce cyberloafing, but also what the unexpected effects or side-effects of the Internet monitoring policy may be, so that they can better weigh the benefits and costs of Internet monitoring and make an appropriate decision. In addition, I found that the performance of employees with high extrinsic work motivation is likely to increase if their cyberloafing behaviour is decreased, compared with employees with low extrinsic work motivation. This finding suggests the impact of cyberloafing on job performance may vary across different employees, therefore, organizations should be cautious to adopt "one size fits all" policies to regulate employees' cyberloafing behaviour.

## *Limitations and Future Research Directions*

In spite of the theoretical and practical implications, this study has several limitations, which suggest that the results should be interpreted with caution. First, the findings of this study were based on data from a single software development company, using a relatively small sample size. The conclusions may be different for other organizations in different industries or different organizational cultures. Therefore, future research should be conducted to replicate the findings of this study in different contexts. Second, employee job performance was measured by employees' self-reported data, future research should use data from multiple sources (e.g., self-reported, the supervisor reported and/or archival data) to better measure employee job performance. Third, the Internet monitoring policy in this study, as announced by the company CEO, only tracks the websites that employees visit, this study did not examine other specific features of Internet monitoring. For example, some Internet monitoring systems can track not only websites address but also record all the information in a much-detailed level, such as e-mail content or online chatting history. The different monitoring "depth" may have a different impact on employees' Internet usage behaviour as well as other behaviours. Future research should expand this study by considering different features of Internet monitoring systems. Fourth, when discussing and measuring cyberloafing, this study only took into account employees' non-work-related Internet usage via work computers connected organizational Internet access, which can be tracked by the Internet monitoring system of organizations. The study did not take into account employees' cyberloafing behaviour via their personal smartphones, which cannot be captured by the organizational Internet monitoring system, because employees can easily circumvent organizational Internet monitoring by using mobile Internet access (e.g., 4G Internet of personal smartphones).

Nevertheless, the findings of this study open avenues for future research to explore a number of research questions. First, I found that Internet monitoring did not significantly change employees' extrinsic work motivation, future research should further explore the boundary between the relationship between Internet monitoring and extrinsic work motivation. Similarly, I also found that extrinsic work motivation did not significantly influence employees' job performance. I conjecture that the job type (e.g., jobs requiring high skills vs. jobs requiring low skills) may play a role in determining the relationship between the two types of work motivation and job performance. For example, compared with the jobs requiring high skills, extrinsic work motivation play a relatively more important role in determining job performance in jobs requiring relatively low skills. Future research may well explore in this realm.

Second, in addition to job performance, future studies should also explore whether Internet monitoring will influence employees' other behaviours that are related to cyberloafing and work motivation. For example, one outcome that is related to intrinsic work motivation could be employee job creativity. Since previous studies found that intrinsic work motivation may have a positive impact on employees' creative performance (Shin and Zhou 2003), Internet monitoring that decreases employees' intrinsic work motivation may have a negative impact on employees' creativity. Another behaviour that can be affected by Internet monitoring is employees' organizational citizenship behaviour (OCB). For example, Rajah and Lim (2011) found a positive relationship between cyberloafing and OCB, because employees may feel a sense of guilt when engaging in cyberloafing, and engaging in OCB can be a means for employees to alleviate the sense of guilt. In this sense, the decreased cyberloafing due to Internet monitoring may also decrease employees' OCB. I encourage future studies to explore the broad impacts of Internet monitoring, as a policy to regulate employees' cyberloafing behaviour, on employees' various perceptions and behaviours.

## Conclusion

Employee cyberloafing behaviour is common in organizations. In this study, I examined the impact of Internet monitoring, as an organizational initiative to regulate employees' cyberloafing, on employee job performance. I conducted a field experiment in a software development company to test the hypotheses. I found that Internet monitoring decreased employees' cyberloafing behaviour, it also decreased employees' intrinsic work motivation. While the decreased cyberloafing may improve employee job performance, particularly for employees with high extrinsic work motivation, the decreased intrinsic work motivation may harm employee job performance. To the best of my knowledge, this is the first study in the literature that examines the impact of cyberloafing-related Internet monitoring in the workplace on employee job performance. The results of this research suggest that organizations should consider both the positive and negative impacts of Internet monitoring on employees and organizations before deciding to implement Internet monitoring as an attempt to address employees' cyberloafing behaviour. Future research should seek to replicate the findings of this study in different organizations using a larger sample size. This study also provides avenues for future studies to investigate the broad impacts of Internet monitoring on employees' various perceptions and behaviours.

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## References

Agarwal, U. 2019. "Impact of Supervisors' Perceived Communication Style on Subordinate's Psychological Capital and Cyberloafing," *Australasian Journal of Information Systems* (23), pp. 1-27.

Alder, G. S., and Ambrose, M. L. 2005. "Towards Understanding Fairness Judgments Associated with Computer Performance Monitoring: An Integration of the Feedback, Justice, and Monitoring Research," *Human Resource Management Review* (15:1), pp. 43-67.

Alder, G. S., and Tompkins, P. K. 1997. "Electronic Performance Monitoring: An Organizational Justice and Concertive Control Perspective," *Management Communication Quarterly* (10:3), pp. 259-288.

Alge, B. J., Ballinger, G. A., Tangirala, S., and Oakley, J. L. 2006. "Information Privacy in Organizations: Empowering Creative and Extrarole Performance," *Journal of applied psychology* (91:1), p. 221.

Askew, K., Buckner, J. E., Taing, M. U., Ilie, A., Bauer, J. A., and Coovert, M. D. 2014. "Explaining Cyberloafing: The Role of the Theory of Planned Behavior," *Computers in Human Behavior* (36), pp. 510-519.

Askew, K. L., Ilie, A., Bauer, J. A., Simonet, D. V., Buckner, J. E., and Robertson, T. A. 2018. "Disentangling How Coworkers and Supervisors Influence Employee Cyberloafing: What Normative Information Are Employees Attending To?," *Journal of Leadership & Organizational Studies*), p. 154805181881309.

Belanger, F., and Van Slyke, C. 2002. "Abuse or Learning?," *Communications of the ACM* (45:1), pp. 64-65.

Blanchard, A. L., and Henle, C. A. 2008. "Correlates of Different Forms of Cyberloafing: The Role of Norms and External Locus of Control," *Computers in Human Behavior* (24:3), pp. 1067-1084.

Bock, G.-W., Shin, Y., Liu, P., and Sun, H. 2010. "The Role of Task Characteristics and Organizational Culture in Non-Work-Related Computing: A Fit Perspective," *ACM SIGMIS Database: the DATABASE for Advances in Information Systems* (41:2), pp. 132-151.

Chalykoff, J., and Kochan, T. A. 1989. "Computer - Aided Monitoring: Its Influence on Employee Job Satisfaction and Turnover," *Personnel Psychology* (42:4), pp. 807-834.

Cheng, L., Li, W., Zhai, Q., and Smyth, R. 2014. "Understanding Personal Use of the Internet at Work: An Integrated Model of Neutralization Techniques and General Deterrence Theory," *Computers in Human Behavior* (38), pp. 220-228.

Coker, B. L. 2011. "Freedom to Surf: The Positive Effects of Workplace Internet Leisure Browsing," *New Technology, Work and Employment* (26:3), pp. 238-247.

D'arcy, J., and Herath, T. 2011. "A Review and Analysis of Deterrence Theory in the Is Security Literature: Making Sense of the Disparate Findings," *European Journal of Information Systems* (20:6), pp. 643-658.

D'Arcy, J., Hovav, A., and Galletta, D. 2009. "User Awareness of Security Countermeasures and Its Impact on Information Systems Misuse: A Deterrence Approach," *Information Systems Research* (20:1), pp. 79-98.

Deci, E. L. 1972. "The Effects of Contingent and Noncontingent Rewards and Controls on Intrinsic Motivation," *Organizational behavior and human performance* (8:2), pp. 217-229.

Deci, E. L., and Ryan, R. M. 1985. "The General Causality Orientations Scale: Self-Determination in Personality," *Journal of research in personality* (19:2), pp. 109-134.

Falk, A., and Kosfeld, M. 2006. "The Hidden Costs of Control," *American Economic Review* (96:5), pp. 1611-1630.

Gibbs, J. P. 1975. *Crime, Punishment, and Deterrence*. Elsevier.

Glassman, J., Prosch, M., and Shao, B. B. M. 2015. "To Monitor or Not to Monitor: Effectiveness of a Cyberloafing Countermeasure," *Information & Management* (52:2), pp. 170-182.

Henle, C. A., Kohut, G., and Booth, R. 2009. "Designing Electronic Use Policies to Enhance Employee Perceptions of Fairness and to Reduce Cyberloafing: An Empirical Test of Justice Theory," *Computers in Human Behavior* (25:4), pp. 902-910.

Ivarsson, L., and Larsson, P. 2011. "Personal Internet Usage at Work: A Source of Recovery," *Journal of Workplace Rights* (16:1).

Jiang, H. 2016. "Employee Personal Internet Usage in the Workplace," *Jyväskylä studies in computing*:257).

Jiang, H., Siponen, M., and Tsohou, A. 2019. "A Field Experiment for Understanding the Unintended Impact of Internet Monitoring on Employees: Policy Satisfaction, Organizational Citizenship Behavior and Work Motivation,").

Jiang, H., and Tsohou, A. 2014. "The Dual Nature of Personal Web Usage at Workplace: Impacts, Antecedents and Regulating Policies," in: *in Proceedings of the 22nd European Conference on Information Systems*.

Khansa, L., Kuem, J., Siponen, M., and Kim, S. S. 2017. "To Cyberloaf or Not to Cyberloaf: The Impact of the Announcement of Formal Organizational Controls," *Journal of Management Information Systems* (34:1), pp. 141-176.

Kidwell, R. E., and Bennett, N. 1994a. "Electronic Surveillance as Employee Control: A Procedural Justice Interpretation," *The Journal of High Technology Management Research* (5:1), pp. 39-57.

Kidwell, R. E., and Bennett, N. 1994b. "Employee Reactions to Electronic Control Systems: The Role of Procedural Fairness," *Group & Organization Management* (19:2), pp. 203-218.

Kuem, J., and Siponen, M. 2014. "Short-Time Non-Work-Related Computing and Creative Performance,"), pp. 3215-3223.

Latham, G. P., and Pinder, C. C. 2005. "Work Motivation Theory and Research at the Dawn of the Twenty-First Century," *Annu. Rev. Psychol.* (56), pp. 485-516.

Lim, V. K. G., and Chen, D. J. Q. 2012. "Cyberloafing at the Workplace: Gain or Drain on Work?," *Behaviour & Information Technology* (31:4), pp. 343-353.

McNall, L. A., and Roch, S. G. 2007. "Effects of Electronic Monitoring Types on Perceptions of Procedural Justice, Interpersonal Justice, and Privacy 1," *Journal of Applied Social Psychology* (37:3), pp. 658-682.

Moody, G. D., Siponen, M., and Pahnila, S. 2018. "Toward a Unified Model of Information Security Policy Compliance," *MIS Quarterly* (42:1).

Nagin, D. S., and Pogarsky, G. 2001. "Integrating Celerity, Impulsivity, and Extralegal Sanction Threats into a Model of General Deterrence: Theory and Evidence," *Criminology* (39:4), pp. 865-892.

Oravec, J. A. 2002. "Constructive Approaches to Internet Recreation in the Workplace," *Commun. ACM* (45:1), pp. 60-63.

Pinder, C. C. 2014. *Work Motivation in Organizational Behavior*. Psychology Press.

Posey, C., Bennett, B., Roberts, T., and Lowry, P. B. 2011. "When Computer Monitoring Backfires: Invasion of Privacy and Organizational Injustice as Precursors to Computer Abuse," *Journal of Information System Security* (7:1), pp. 24-47.

Rajah, R., and Lim, V. K. 2011. "Cyberloafing, Neutralization, and Organizational Citizenship Behavior," *PACIS*, p. 152.

Ryan, R. M., and Deci, E. L. 2000. "Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions," *Contemporary educational psychology* (25:1), pp. 54-67.

Samaranayake, V., and Gamage, C. 2012. "Employee Perception Towards Electronic Monitoring at Work Place and Its Impact on Job Satisfaction of Software Professionals in Sri Lanka," *Telematics and Informatics* (29:2), pp. 233-244.

Seo, M.-G., Barrett, L. F., and Bartunek, J. M. 2004. "The Role of Affective Experience in Work Motivation," *Academy of Management Review* (29:3), pp. 423-439.

Shin, S. J., and Zhou, J. 2003. "Transformational Leadership, Conservation, and Creativity: Evidence from Korea," *Academy of management Journal* (46:6), pp. 703-714.

Sommestad, T., Hallberg, J., Lundholm, K., and Bengtsson, J. 2014. "Variables Influencing Information Security Policy Compliance: A Systematic Review of Quantitative Studies," *Information Management & Computer Security* (22:1), pp. 42-75.

Steers, R. M., Mowday, R. T., and Shapiro, D. L. 2004. "The Future of Work Motivation Theory," *Academy of Management review* (29:3), pp. 379-387.

Straub, D. W., and Nance, W. D. 1990. "Discovering and Disciplining Computer Abuse in Organizations: A Field Study," *MIS quarterly*), pp. 45-60.

Tremblay, M. A., Blanchard, C. M., Taylor, S., Pelletier, L. G., and Villeneuve, M. 2009. "Work Extrinsic and Intrinsic Motivation Scale: Its Value for Organizational Psychology Research," *Canadian Journal of Behavioural Science* (41:4), p. 213.

Tsohou, A., Karyda, M., and Kokolakis, S. 2015. "Analyzing the Role of Cognitive and Cultural Biases in the Internalization of Information Security Policies: Recommendations for Information Security Awareness Programs," *Computers & security* (52), pp. 128-141.

Ugrin, J. C., and Pearson, J. M. 2013. "The Effects of Sanctions and Stigmas on Cyberloafing," *Computers in Human Behavior* (29:3), pp. 812-820.

Ugrin, J. C., and Pearson, M. J. 2008. "Exploring Internet Abuse in the Workplace: How Can We Maximize Deterrence Efforts?," *Review of Business* (28:2).

Van Knippenberg, D. 2000. "Work Motivation and Performance: A Social Identity Perspective," *Applied psychology* (49:3), pp. 357-371.

Wagner, D. T., Barnes, C. M., Lim, V. K., and Ferris, D. L. 2012. "Lost Sleep and Cyberloafing: Evidence from the Laboratory and a Daylight Saving Time Quasi-Experiment," *Journal of Applied Psychology* (97:5), p. 1068.

Williams, L. J., and Anderson, S. E. 1991. "Job Satisfaction and Organizational Commitment as Predictors of Organizational Citizenship and in-Role Behaviors," *Journal of management* (17:3), pp. 601-617.

Wong, W. M., Lee, O.-K., and Lim, K. 2005. "Managing Non-Work Related Computing within an Organization: The Effects of Two Disciplinary Approaches on Employees' Commitment to Change," *PACIS 2005 Proceedings*), p. 36.

Zoghbi-Manrique-de-Lara, P., and Olivares-Mesa, A. 2010. "Bringing Cyber Loafers Back on the Right Track," *Industrial Management & Data Systems* (110:7), pp. 1038-1053.